

This application claims the benefit of U.S.
Provisional Application No. 60/270,649 filed February 26,
2001, which is incorporated herein by reference.

IN THE CLAIMS:

Please cancel Claims 1-3, 6, and 9 without prejudice.

1 4. (Amended) Fiberoptic sensing apparatus,
2 comprising:

3 a fiberoptic coupler in which a plurality of optical
4 fibers are joined through a fused coupling region, said
5 optical fibers including at least one input optical fiber
6 and a plurality of output optical fibers, said fiberoptic
7 coupler distributing light incident to said input optical
8 fiber among said plurality of output optical fibers;

9 a support member;

10 said coupler being mounted to said support member and
11 configured such that at least a portion of said coupling
12 region can be deflected to change the light distribution
13 among said output fibers with said coupling region being
14 under substantially no tension;

15 a fluid column cooperative with a deflection member
16 disposed to deflect said portion of said coupling region;

17 a transducer coupled to said fluid column, said
18 transducer converting pressure fluctuations from an
19 external source into pressure changes in said fluid column,
20 causing said deflection member to deflect said portion of
21 said coupling regions, said transducer being disposed at a
22 first end of said fluid column, and said deflection member
23 being disposed at a second end of said fluid column; and
24 a pressurizing device which sets an initial fluid
25 pressure of said fluid column.

1 7. (Amended) The apparatus of Claim 4, wherein said
2 fluid column is a gaseous column.

1 8. (Amended) The apparatus of Claim 4, wherein at
2 least part of said fluid column is contained in a hose.

1 10. (Amended) The apparatus of Claim 4, further
2 comprising:

3 a device optically coupled to said output optical
4 fibers to detect the change of light distribution.

1 12. (Amended) An apparatus for monitoring acoustic
2 activity or motion of an object, comprising:
3 a support member having a surface configured to
4 support the object;
5 a transducer associated with said support member and
6 capable of transmitting pressure fluctuations due to
7 acoustic activity or motion of the supported object;
8 a fiberoptic sensor having a fused-fiber coupling
9 region supported such that at least a portion of said
10 coupling region can be deflected to change an output of
11 said sensor with said coupling region being under
12 substantially no tension; and
13 a fluid column coupled to said transducer and
14 cooperative with a deflection member to transmit pressure
15 fluctuations from said transducer to said deflection
16 member, said deflection member deflecting said portion of
17 said coupling region.

1 22. (Amended) The apparatus of Claim 21, further
2 comprising a display connected to an output of said device.

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Please add the following new claims:

1 23. (New) The apparatus of Claim 4, wherein said
2 portion of said coupling region is substantially U-shaped.

1 24. (New) The apparatus of Claim 23, wherein said U-
2 shaped portion lies substantially in a plane and is
3 disposed to be deflected along a direction perpendicular to
4 said plane.

1 25. (New) The apparatus of Claim 12, wherein said
2 portion of said coupling region is substantially U-shaped.

1 26. (New) The apparatus of Claim 25, wherein said U-
2 shaped portion lies substantially in a plane and is
3 disposed to be deflected along a direction perpendicular to
4 said plane.

REMARKS

Claims 1-3, 6, and 9 have been cancelled in order to be presented in companion Application No. 10/247,738. The remaining claims have been amended accordingly, and new Claims 23-26 have been added. As a result, Claims 4-5, 7-8, and 10-26 are pending.

WHAT IS CLAIMED IS:

1 1. Fiberoptic sensing apparatus, comprising:

2 a fiberoptic coupler in which a plurality of optical
3 fibers are joined through a fused coupling region, said
4 optical fibers including at least one input optical fiber and
5 a plurality of output optical fibers, said fiberoptic coupler
6 distributing light incident to said input optical fiber among
7 said plurality of output optical fibers;

8 a support member;

9 said coupler being mounted to said support member and
10 configured such that at least a portion of said coupling
11 region can be deflected to change the light distribution among
12 said output fibers without putting said coupling region under
13 tension; and

14 a fluid column cooperative with a deflection member
15 disposed to deflect said portion of said coupling region.

1 2. The apparatus of Claim 1, further comprising:

2 a transducer coupled to said fluid column, said
3 transducer converting pressure fluctuations from an external

4 source into pressure changes in said fluid column, causing
5 said deflection member to deflect said portion of said
6 coupling region.

1 3. The apparatus of Claim 2, wherein said transducer is
2 disposed at a first end of said fluid column, and said
3 deflection member is disposed at a second end of said fluid
4 column.

1 4. The apparatus of Claim 3, further comprising:
2 a pressurizing device which sets an initial fluid
3 pressure of said fluid column.

1 5. The apparatus of Claim 4, wherein said pressurizing
2 device is connected to said fluid column at a position between
3 said first and second ends.

1 6. The apparatus of Claim 1, wherein said fluid column
2 is a liquid column.

1 7. The apparatus of Claim 1, wherein said fluid column
2 is a gaseous column.

1 8. The apparatus of Claim 1, wherein at least part of
2 said fluid column is contained in a hose.

1 9. The apparatus of Claim 2, wherein at least part of
2 said fluid column is contained in a hose.

1 10. The apparatus of Claim 1, further comprising:
2 a device optically coupled to said output optical fibers
3 to detect the change of light distribution.

1 11. The apparatus of Claim 10, further comprising:
2 a display connected to an output of said device.

1 12. An apparatus for monitoring acoustic activity or
2 motion of an object, comprising:
3 a support member having a surface configured to support
4 the object;

5 a transducer associated with said support member and
6 capable of transmitting pressure fluctuations due to acoustic
7 activity or motion of the supported object;

8 a fiberoptic sensor having a fused-fiber coupling region
9 supported such that at least a portion of said coupling region
10 can be deflected to change an output of said sensor without
11 said coupling region being put under tension; and

12 a fluid column coupled to said transducer and cooperative
13 with a deflection member to transmit pressure fluctuations
14 from said transducer to said deflection member, said
15 deflection member deflecting said portion of said coupling
16 region.

1 13. The apparatus of Claim 12, wherein said transducer
2 is disposed at a first end of said fluid column, and said
3 deflection member is disposed at a second end of said fluid
4 column.

1 14. The apparatus of Claim 12, wherein at least a
2 portion of said fluid column is contained in a hose.

1 15. The apparatus of Claim 12, wherein said transducer
2 includes a bladder having an interior space in communication
3 with said fluid column.

1 16. The apparatus of Claim 15, wherein said bladder has
2 a resiliently deformable portion which transmits external
3 pressure fluctuations to said interior space.

1 17. The apparatus of Claim 12, wherein said support
2 member has a recessed or cut-out portion in which at least a
3 portion of said transducer is received.

1 18. The apparatus of Claim 17, wherein said transducer
2 includes a bladder, a portion of which protrudes from said
3 surface of said support member to engage the object to be
4 monitored.

1 19. The apparatus of Claim 18, wherein at least a
2 portion of said fluid column is contained in a hose.

1 20. The apparatus of Claim 19, wherein said support
2 member has a recessed or cut-out portion in which at least a
3 portion of said hose is received.

1 21. The apparatus of Claim 12, further comprising:
2 a device optically coupled to said fiberoptic sensor to
3 detect output changes of said sensor due to the deflection of
4 said portion of said coupling region.

1 22. The apparatus of Claim 21, further comprising a
2 display connected to an output of said device

add 23-26 7